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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,271	01/17/2002	Srinivas Tadepalli	S01.12-0815/STL 10262	1310
7590	03/29/2004			EXAMINER KLIMOWICZ, WILLIAM JOSEPH
Theodore M. Magee WESTMAN CHAMPLIN & KELLY International Centre - Suite 1600 900 South Second Avenue Minneapolis, MN 55402-3319			ART UNIT 2652	PAPER NUMBER DATE MAILED: 03/29/2004 7

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/053,271	TADEPALLI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	William J. Klimowicz	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 23 February 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 4-7, 9, 10, 13, 14, 17, 18 and 22 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3, 8, 11, 12, 15, 16, 19-21 and 23 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Claim Status***

Claims 1-23 are currently pending.

Claims 4-7, 9, 10, 13, 14, 17, 18 and 22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 4 (filed September 25, 2003).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-21 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following phrase(s) lack clear antecedent basis within the claim(s), i.e., either the particularly recited passage fails to be properly introduced prior to its appearance at that point in the claim or the structure recited in the passage is not an inherent part of or component of the previously recited structure:

(i) Claim 19 (line 5 and line 6 bridging line 7), "the disc drive."

Additionally, since claims 20, 21 and 23 depend directly or indirectly from claim 19, they too are thus rejected under the second paragraph of 35 U.S.C. § 112.

***35 USC § 112 Sixth Paragraph***

This application contains claims (e.g., claim 19) apparently invoking 35 U.S.C. 112 sixth paragraph (i.e., means-plus-function). In order to satisfy 35 U.S.C 112 second paragraph, the written description must link or associate particular structure, material or acts to the function recited in the means-(or step-) plus-function claim limitation. 37 CFR 1.75(d)(1) provides, in part, that “the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.” In the situation in which the written description only implicitly or inherently sets forth the structure, material or acts corresponding to a means-(or step-) plus-function, and the Examiner concludes that one skilled in the art would recognize what structure, materials, or acts perform the function recited in a means-(or step-) plus-function, the Applicant should clarify the record by amending the written description such that it expressly recites what structure, material or acts perform the function recited in the claim element. (See Federal Register/ Vol. 65, No. 120/ Wednesday, June 21, 2000/ Notices/ pp.38510-38516 “Supplemental Examination Guidelines for Determining the Applicability of 35 U.S.C. 112, paragraph 6”).

More concretely, if Applicant wishes to have the claims considered under 35 USC § 112, sixth paragraph, the Applicant must:

- (i) Show why the claim language properly invokes 35 USC § 112, sixth paragraph (e.g., by showing that the claim term fails to be modified by sufficient structure for performing the claimed function);
- (ii) Identify the function for each invocation of 35 USC § 112, sixth paragraph;

(iii) Identify the corresponding structure for each invocation of 35 USC § 112, sixth paragraph;

Additionally, as set forth, *supra*, the Applicant should clarify the record by amending the written description such that it expressly recites what structure, material or acts perform the function recited in the claim terms and phrases, provided no new matter is introduced. See 37 CFR 1.75(d) and MPEP § 2181.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8, 11, 12, 15, 16, 19-21 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Katase et al. (US 6,125,004).

As per claim 1, Katase et al. (US 6,125,004) discloses a data storage device (e.g., see COL. 2, lines 59-63) for storing and accessing data, the storage device comprising: a motor (inherently provided to move the magnetic disk so as to generate the air flow in the direction of arrows a, as seen in FIGS. 1 and 2); at least one movable medium (e.g., a magnetic disk - see COL. 2, line 63) coupled to the motor and capable of being moved by the motor (so as to

generate spin and provide the airflow vectors  $a$ , as seen in FIGS. 1 and 2) and thereby generating a turbulent airflow; and at least one internal surface (e.g., surface 13 - FIGS. 1 and 2) comprising at least two grooves (e.g., grooves 31-36), each groove having a groove axis (e.g., the longitudinal direction of grooves, perpendicular to air vectors  $a$ , as seen in FIG. 1) oriented substantially perpendicular to a mean airflow direction ( $a$  vectors as seen in FIGS. 1 and 2) and separated from the other groove axis in a direction substantially parallel to the mean airflow direction (vectors  $a$ ) so as to reduce interaction between the internal surface (13) and a turbulent airflow generated by the medium (e.g. spinning disk which generates vectors  $a$ ). That is, since the claimed structure is identical in every aspect and functions in the same manner wherein air passes over v-shaped grooves in a direction perpendicular to the longitudinal axes of the grooves, the interaction between the grooves and the air in the immediate vicinity of the grooves is reduced to at least some degree.

As per claim 2, the internal surface comprises at least three evenly spaced grooves (31-36).

As per claim 3, wherein the grooves (31-36) are V-shaped (FIG. 2).

As per claims 8 and 15, wherein the internal surface forms part of a suspension (e.g., the head slider (1) can be broadly construed as providing support and suspending thin film head element (2)).

Additionally, as per claim 11, a surface (13) for a component in the data storage device, the surface (13) comprising; a first groove (e.g., 31) having a groove axis that is substantially perpendicular to a direction of expected mean air flow (see FIGS. 1 and 2); and a second groove

(another of the V-shaped grooves, e.g. 32) proximate the first groove (31) and having a groove axis that is substantially perpendicular to the expected mean air flow (vector a) and that is separated from the first groove axis in a direction that is substantially parallel to the expected mean air flow (vector a) such that the first and second grooves (31, 32) cooperate to reduce interaction between vortices in the air flow and the surface, in the degree and manner as discussed with regard to claim 1, *supra*.

As per claim 12, the first groove and the second groove are V-shaped (31, 32 - FIG. 2).

As per claim 16, wherein the first groove (31) borders the second groove (32).

Additionally, as per claim 19, a data storage device for storing and accessing data, the device comprising: a moving medium (magnetic disk) that generates an airflow having eddies in the device; and excitation reduction means (grooves (31-36)) defining a surface (13) in the disc drive for reducing the excitation *of the surface* by causing eddies in the airflow to be moved away from the surface. More concretely, the structure that corresponds to the invoked 35 USC 112 6<sup>th</sup> paragraph limitation includes the at least one internal surface (e.g., surface 13 - FIGS. 1 and 2) comprising at least two v-shaped grooves (e.g., grooves 31-36), wherein each groove having a groove axis (e.g., the longitudinal direction of grooves, perpendicular to air vectors a, as seen in FIG. 1) oriented substantially perpendicular to a mean airflow direction (a vectors as seen in FIGS. 1 and 2) and separated from the other groove axis in a direction substantially parallel to the mean airflow direction (vectors a) so as to reduce interaction between the internal surface (13) and a turbulent airflow generated by the medium (e.g. spinning disk which generates vectors a). That is, since the claimed structure is identical in every aspect and functions in the same

manner wherein air passes over v-shaped grooves in a direction perpendicular to the longitudinal axes of the grooves, the interaction between the grooves and the air in the immediate vicinity of the grooves is reduced to at least some degree.

As per claim 20, wherein the excitation reduction means comprises grooves (31-36) on the surface - FIGS. 1 and 2.

As per claim 21, wherein the grooves (31-36) are V-shaped - FIG. 3.

As per claim 23, wherein the grooves (31-36) are evenly spaced - FIG. 3.

Claims 11, 12, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamaguchi et al. (JP 63-201967).

As per claim 11, Yamaguchi et al. (JP 63-201967) discloses a surface (11) for a component in a data storage device, the surface (11) comprising; a first groove (14 and/or 15) having a groove axis (longitudinal axis) that is substantially perpendicular to a direction of expected mean air flow (vector A direction as seen in FIGS. 1 and 2 - from the vector direction A, as seen in FIG. 1 - note the positioning of the slider and its air inflow and outflow direction and the positioning of transducer (1) at the air outflow end of the slider); and a second groove (another of the grooves 14 and/or 15) proximate the first groove and having a groove axis that is substantially perpendicular to the expected mean air flow (A direction) and that is separated from the first groove axis in a direction that is substantially parallel to the expected mean air flow such

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that the first and second grooves cooperate to reduce interaction between vortices in the air flow and the surface.

As per claim 12, wherein the grooves (14, 15) are “V-shaped.” More concretely, as seen in FIG. 4 and 2, the grooves indeed have a “V-shape” form.

As per claim 15, wherein the surface (11) forms part of a suspension (e.g., 11).

As per claim 16, wherein the first groove (15 and/or 14) borders the second groove (see FIGS. 1 or 3).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 8, 19-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al. (JP 63-201967).

See the rejection of Yamaguchi et al. (JP 63-201967), *supra*.

As per claim 1, Yamaguchi et al. (JP 63-201967) discloses for express use in a data storage device for storing and accessing data, wherein the intended operating environment of the supporting device of Yamaguchi et al. (JP 63-201967) would necessarily include a motor; at least one movable medium coupled to the motor and being capable of being moved by the motor

to thereby generate a turbulent airflow; and at least one internal surface (e.g., 11) comprising at least two grooves (14, 15), each groove (14, 15) having a groove axis (axis located along the longitudinal length of the grooves (14, 15)) oriented substantially perpendicular to a mean airflow direction (from the vector direction A, as seen in FIG. 1 - note the positioning of the slider and its air inflow and outflow direction and the positioning of transducer (1) at the air outflow end of the slider) that is and separated from the other groove axis in a direction substantially parallel to the mean airflow direction (A direction) so as to reduce interaction between the internal surface and a turbulent airflow generated by a medium.

As per claim 2, the internal surface comprises at least three evenly spaced grooves (e.g., 15, 15 and 15 as seen in FIG. 3).

As per claim 3, wherein the grooves (14, 15) are “V-shaped.” More concretely, as seen in FIG. 4 and 2, the grooves indeed have a “V-shape” form.

As per claim 8, wherein the internal surface forms part of a suspension (e.g., 11).

Additionally, as per claim 19, excitation reduction means (including grooves (14, 15)) defining a surface in a disc drive for reducing the excitation of the surface (11) by causing eddies in the airflow to be moved away from the surface.

More concretely, the structure that corresponds to the invoked 35 USC 112 6<sup>th</sup> paragraph limitation includes at least one internal surface (e.g., 11) comprising at least two grooves (14, 15), each groove (14, 15) having a groove axis (axis located along the longitudinal length of the grooves (14, 15)) oriented substantially perpendicular to a mean airflow direction (from the vector direction A, as seen in FIG. 1 - note the positioning of the slider and its air inflow and

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outflow direction and the positioning of transducer (1) at the air outflow end of the slider) that the and separated from the other groove axis in a direction substantially parallel to the mean airflow direction (A direction) so as to reduce interaction between the internal surface and a turbulent airflow generated by a medium.

As per claim 20, wherein the excitation reduction means comprises grooves (14, 15) on the surface - FIGS. 1-3.

As per claim 21, wherein the grooves (14, 15) are V-shaped - FIG. 3.

As per claim 23, wherein the grooves (14, 15) are evenly spaced (e.g., along the longitudinal direction )- FIG. 3.

With regard to claims 1 and 19, Yamaguchi et al. (JP 63-201967) discloses all the claimed features, as articulated, *supra*, except for the data storage device environment in which it is made to specifically operate in, i.e., a disk drive.

Official notice is taken that disk drives of the type in which the transducing supporting device of Yamaguchi et al. (JP 63-201967) is expressly intended to operate in, are notoriously old and well known and ubiquitous in the art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the transducing supporting device of Yamaguchi et al. (JP 63-201967) in its express intended operating environment, i.e., a disk drive include a spinning motor as set forth in the claims.

The rationale is as follows: one of ordinary skill in the art would have been motivated to use the transducing supporting device of Yamaguchi et al. (JP 63-201967) in its express intended operating environment, i.e., a disk drive include a spinning motor as set forth in the claims in order to provide the benefits of the supporting device offered by Yamaguchi et al. (JP 63-201967) in its intended operating environment, e.g., to reduce an exciting force of a load beam which is subjected to air flow.

*Response to Arguments*

Applicant's arguments with respect to claims 1-3, 8, 11, 12, 15, 16, 19-21 and 23 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William J. Klimowicz  
Primary Examiner  
Art Unit 2652

WJK